



OAPEC



UNITED NATIONS

# *9<sup>th</sup> International Forum on Energy for Sustainable Development*

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## **“The Contribution of Natural Gas to the Sustainable Development Goals (SDGs): Arab Countries Case “**

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**Organization of Arab Petroleum Exporting Countries (OAPEC)**





**Developments of the Arab Gas Sector: Upstream and Downstream**

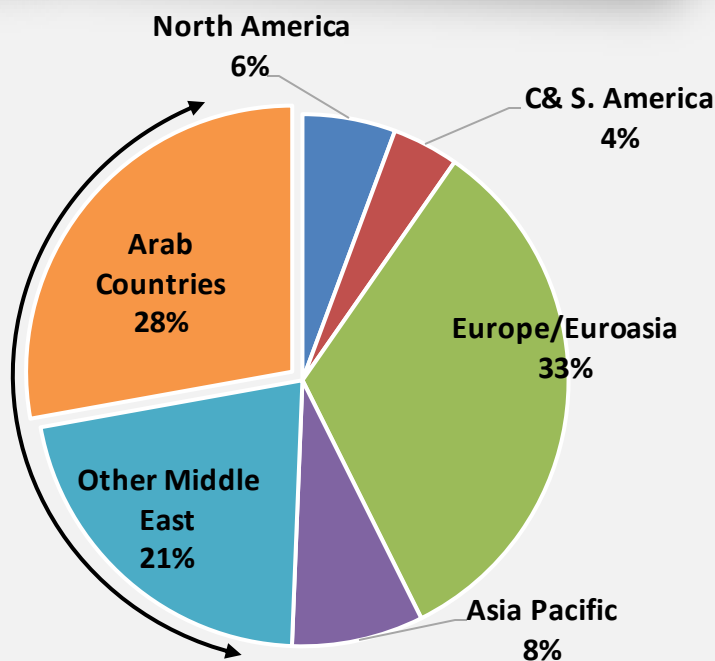
**Growing Significance of Gas in the Arab Energy Sector**

**Contribution of Gas to Sustainable Energy Goals: Tracking Progress Towards SDG7**

**Gas and Renewables: Future Plans and Activities to Meet the Growing Demand on Energy**

01

## Distribution of the World's Total Proven Gas Reserves, 2017

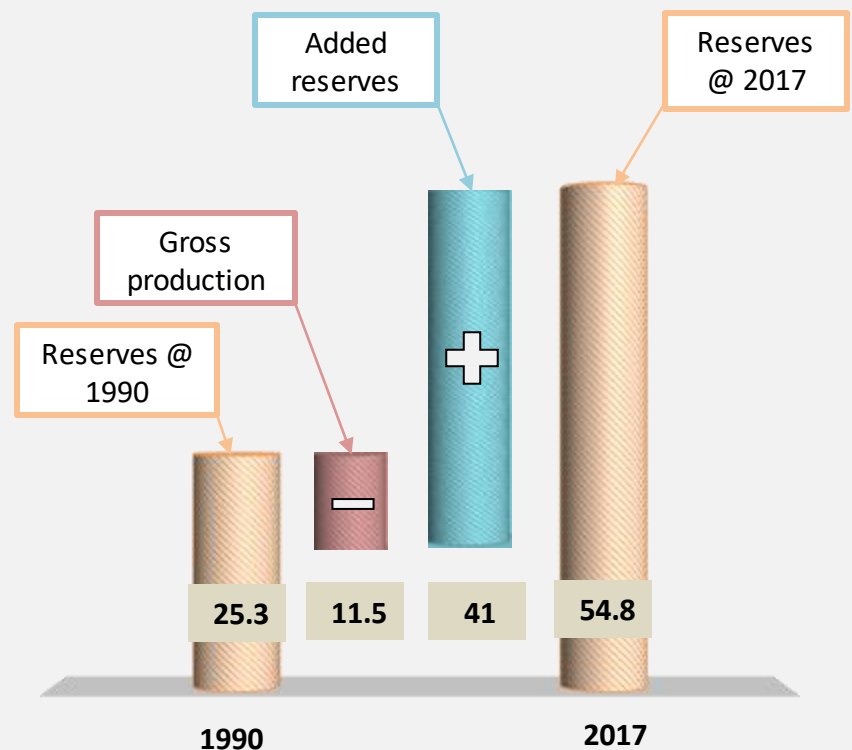


49%

Source: OAPEC, Oil & Gas Journal, Cedigaz

28%

Share of proven gas reserves in the Arab countries



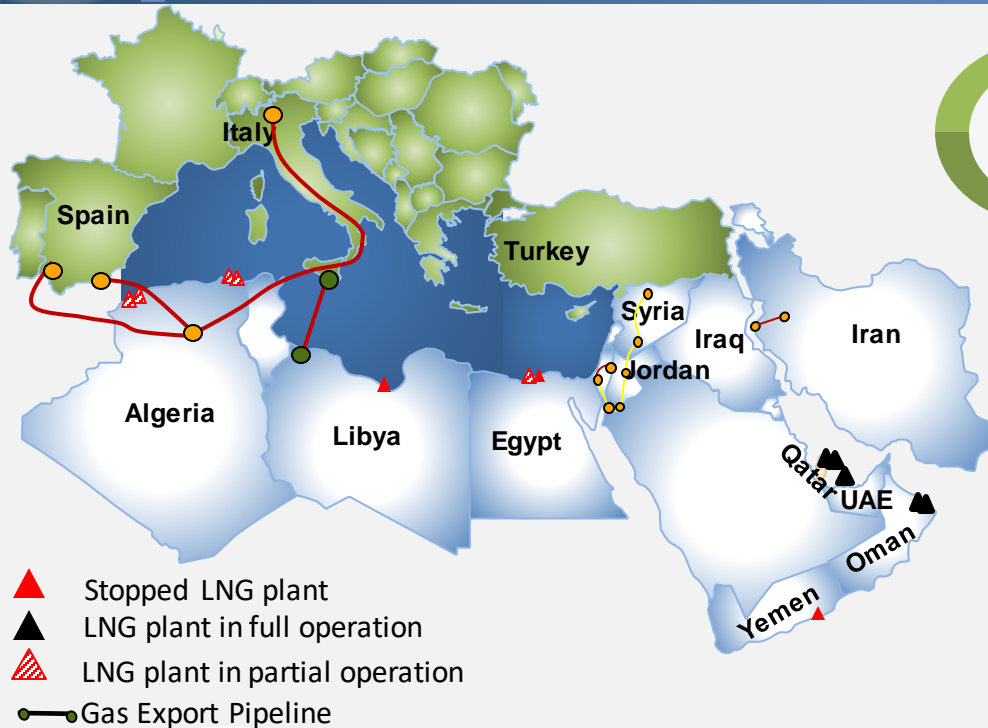
Unit: Trillion Cubic Meters (TCM)

5.4%

Annual growth rate of gas production in the Arab countries in 1990-2017

355%

Compensation ratio of the cumulative gross gas production!



01

Arab Countries invested billions of \$ in export infrastructure to deliver its gas to consumers in Asia & Europe (20% of global gas trade)

02

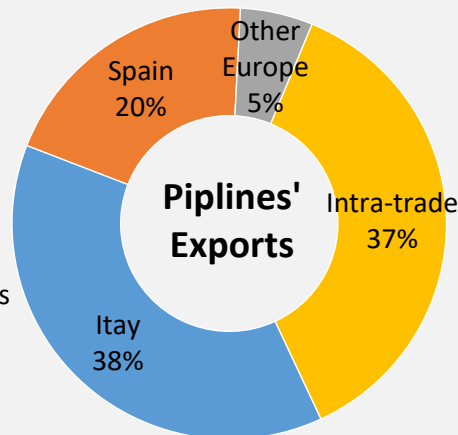
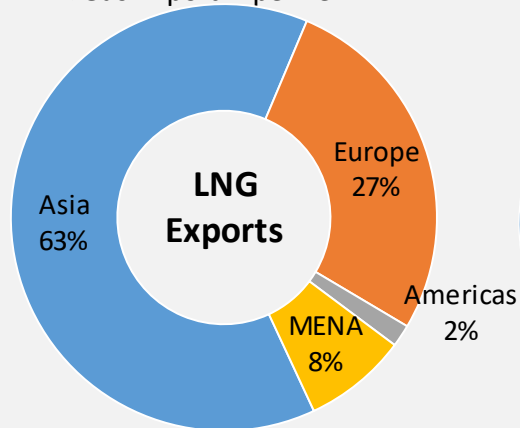
Arab region is a major LNG supplier to Asia and Europe and emerging markets within the MENA region.

03

Arab region is second largest source of gas exports through pipelines to Europe behind Russia.

04

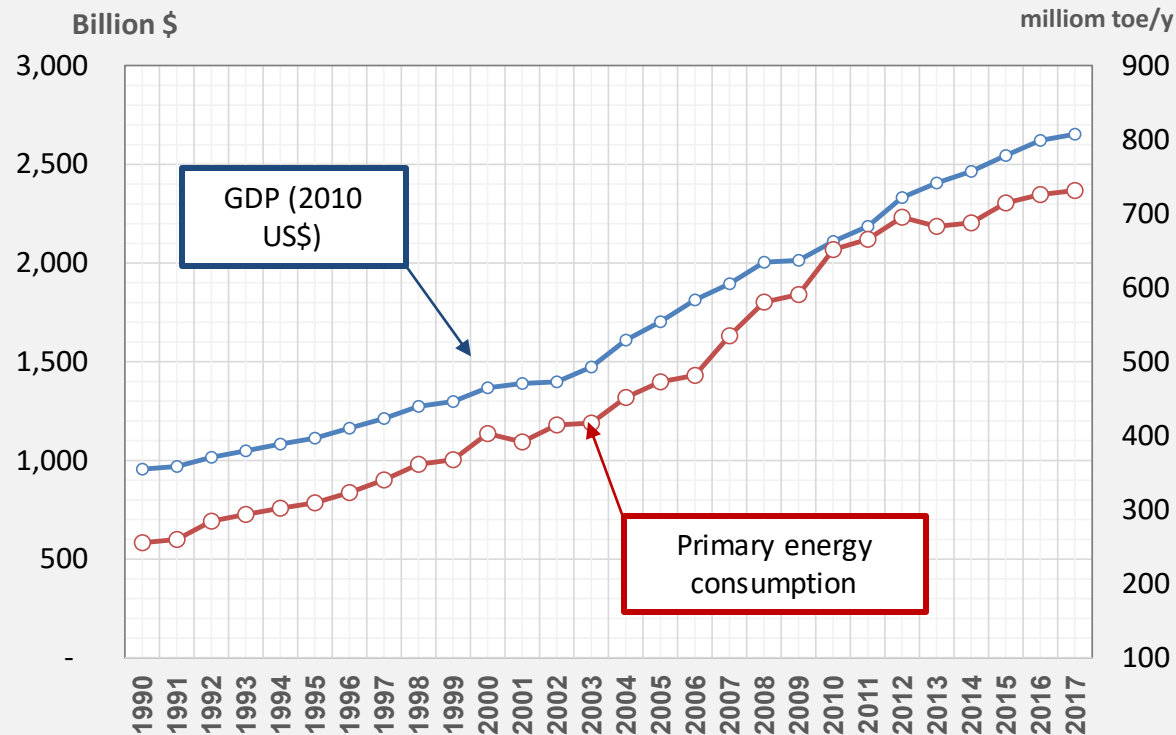
Arab countries play a key global role to provide efficient, cleaner & sustainable energy source to its consumers



7 AFFORDABLE AND CLEAN ENERGY



## Development of GDP (constant 2010 US\$) & Primary Energy Consumption in the Arab countries



Source: data compiled from world bank, OAEPC

# 3.9%

ECONOMIC CAGR  
1990-2017

# 8 DECENT WORK AND ECONOMIC GROWTH

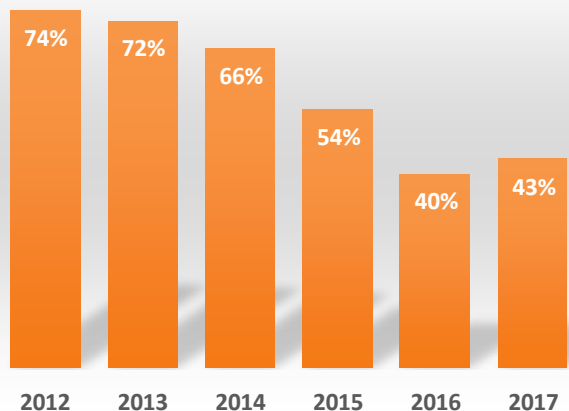


# 4%

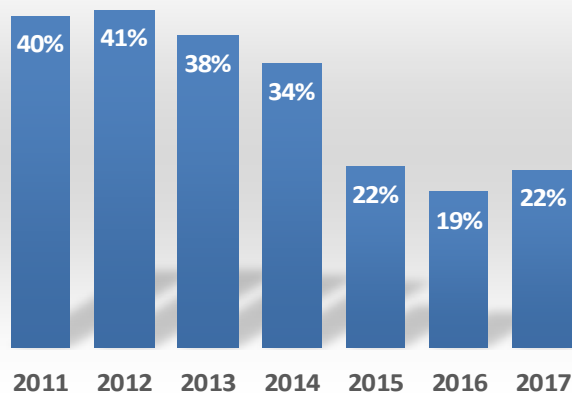
ENERGY DEMAND CAGR  
1990-2017

- Economic growth is still coupled with the growing demand on energy (decoupling is a challenge)

### Oil & Gas Sector% in GDP



### Oil & Gas Sector% in Public Revenues



Source: economic statistical bulletin of Arab countries

### 8 DECENT WORK AND ECONOMIC GROWTH



1

O & G sector plays a key role in GDP in the Arab countries. However, its share declined in the recent years due to low oil price.

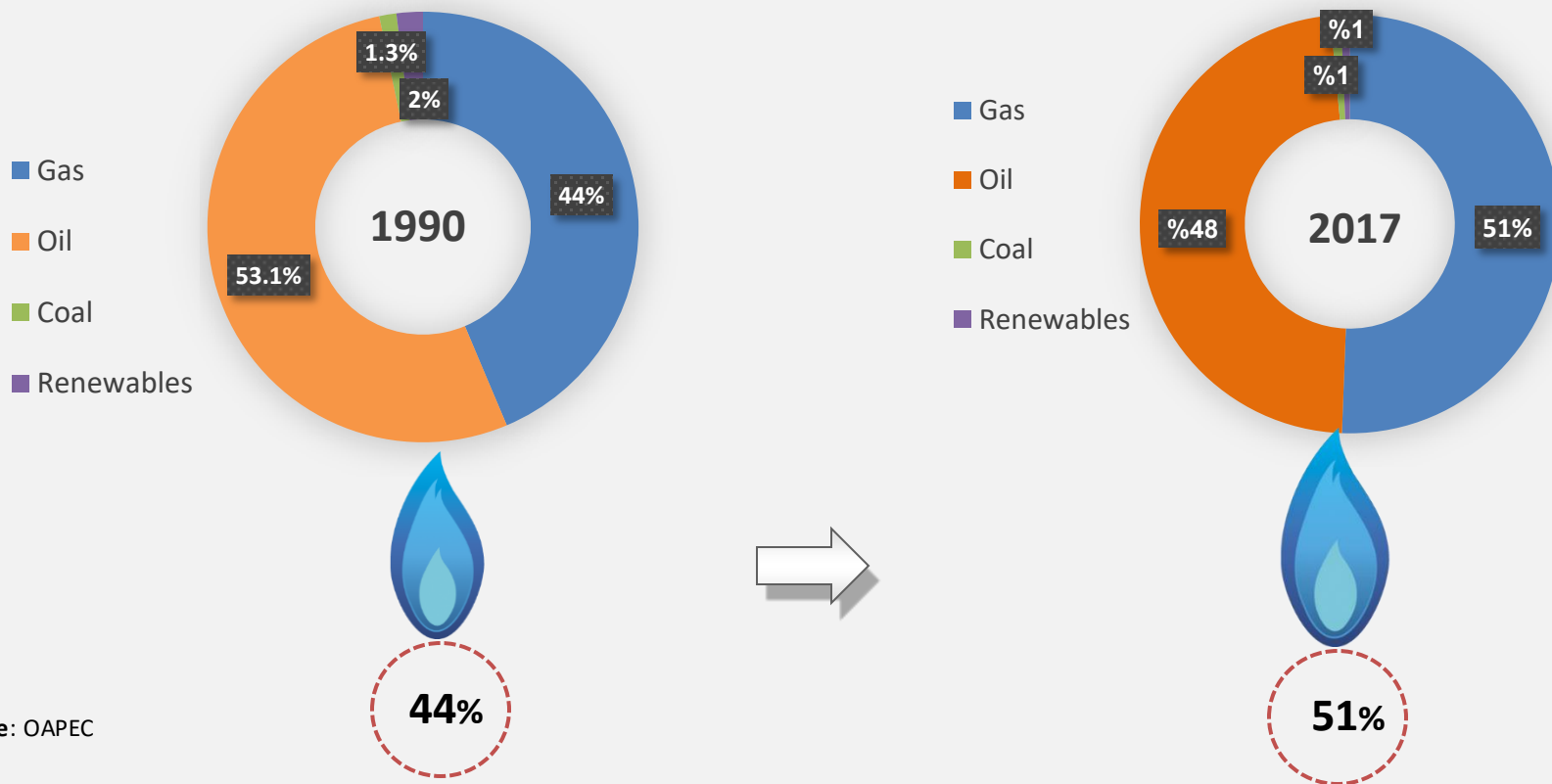
2

O & G sector is the major part of public revenues and helps to promote the economy in many Arab countries

3

Such role makes O & G sector one of the key input to Sustainable development in the Arab countries in consistent with SDG 8





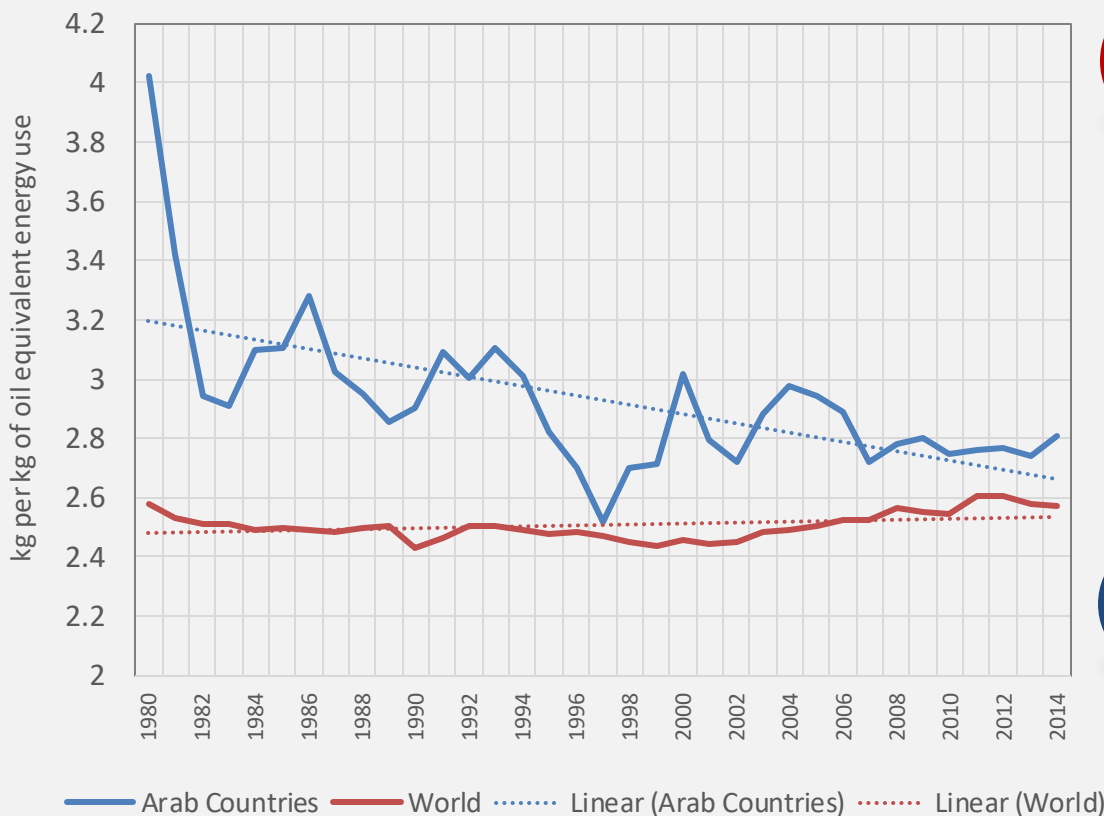
Gas took market share away from oil where its share in the primary mix increased from 44% to 51% in 1990-2017



Although Renewables' share in primary mix is declining (1.3% to 0.7%), it's a good signal of reduced dependence on biomass

1

CO<sub>2</sub> intensity  
(kg CO<sub>2</sub> per kg of oil equivalent energy use)



Source: data compiled from world bank

13 CLIMATE ACTION



1

Increasing gas share in primary energy mix effectively contributed to reduce CO<sub>2</sub> intensity from 4.2 to 2.8 kgCO<sub>2</sub> per kg of oil equivalent energy use in 1980-2014

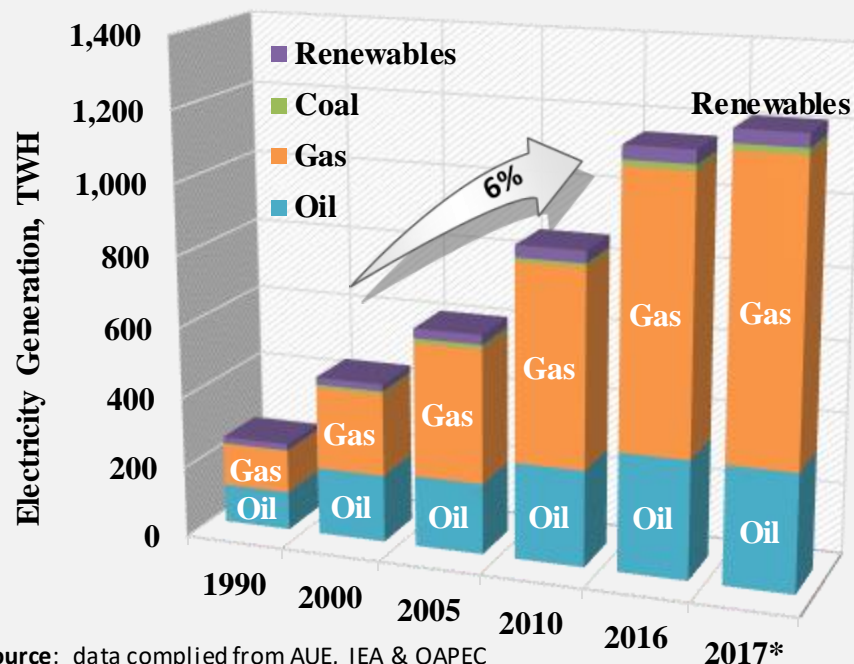
2

Globally, CO<sub>2</sub> intensity has been slightly rising over the long term to reach 2.6 kgCO<sub>2</sub> per kg of oil equivalent energy use in 2014

33%  
reduction



Development of Electricity Generation, TWH



1

Renewables have a share 5% of installed capacity & 3% of generated electricity.

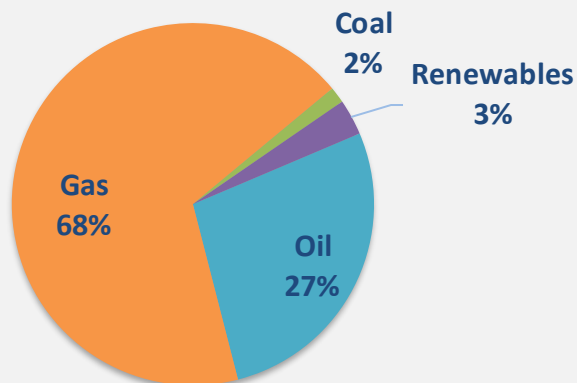
2

Modernization and replacement of less efficient plants are still ongoing

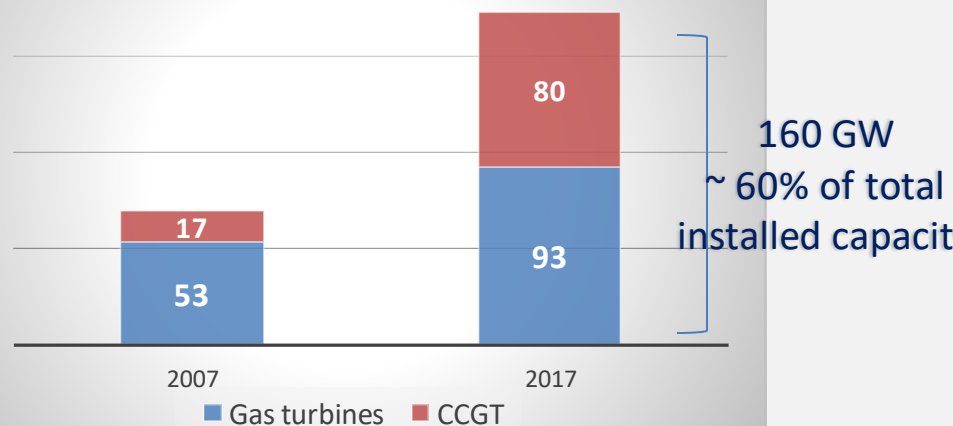
3

Gas availability is the main factor behind power sector expansion using CCGT

Electricity Generation Mix, 2017

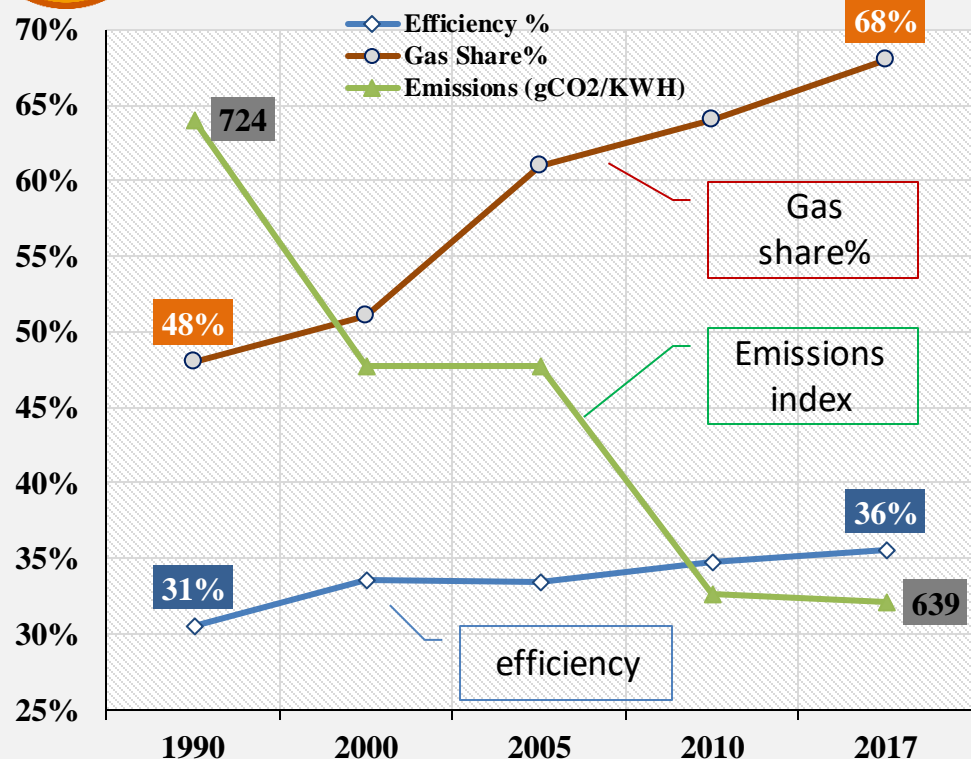


Construction of gas/ CCGT in the Arab countries, GW





## The impact of the expanded gas usage in the power sector on



Source: data calculated from AUE, IEA & OAEPC

### Lower CO<sub>2</sub> Emissions per MWH

-from 725 to 639 kgCO<sub>2</sub>/MWH

### Better Air Quality

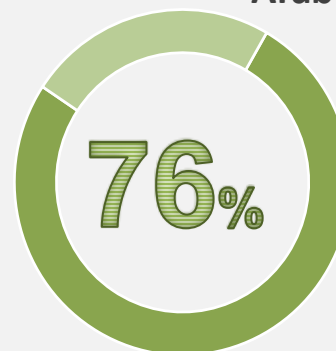
Gas produces fewer emissions  
(ex. CO, PM, Nox, Sox,)

### Lower Fuel Consumption

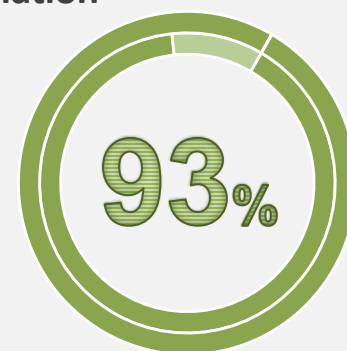
-Average thermal efficiency  
increased from 31% to 36%

3 2 1

### Access Rate Access to Electricity, % of Arab Population



1990



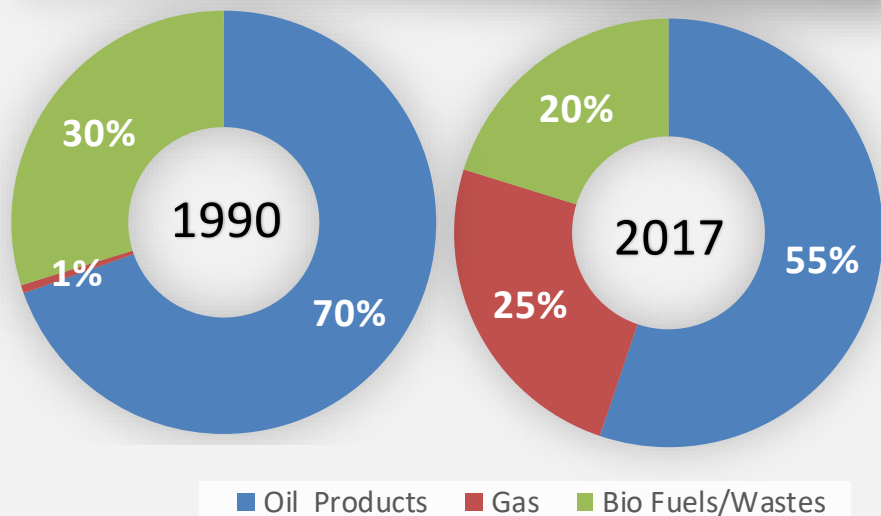
2016

Source: Data compiled from WB, WEO 2017, Global Tracking Framework Report 2018

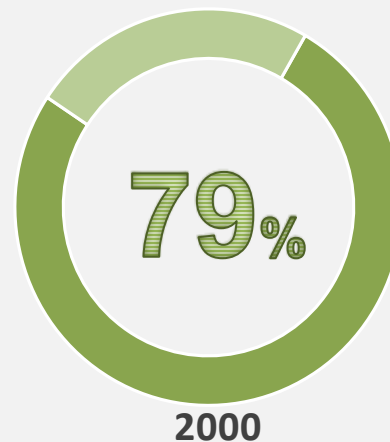


01

### Gas Penetration into the Residential Sector in the Arab Countries, 1990-2017



### Access Rate to Clean Fuels and Technologies for Cooking, % of Arab Population



1

Gas penetrated the residential sector and its share in fuel consumption is growing rapidly

2

Meanwhile, the solid wastes share in fuel consumption is declining

3

a good indicator of providing modern energy services for all

Source: Global Tracking Framework Report 2018

01

## Electricity Generation Outlook in the Arab Countries, TWH



Source: AUE, 2016



Electricity generation will climb by almost **“6% per year”** through to **2027**



**65%** is the total increase in electricity generation by 2027



Such growth will require annual capacity additions of about **20 GW**



**Gas and Renewable Sources** will play the main role to meet this demand growth

## NATURAL GAS

## 1 22 Projects

Gas development projects are expected to come onstream in **2017-2022** at total production capacity of 200 bcm/y (i.e. **35%** of current gas production)

## RENEWABLE ENERGY

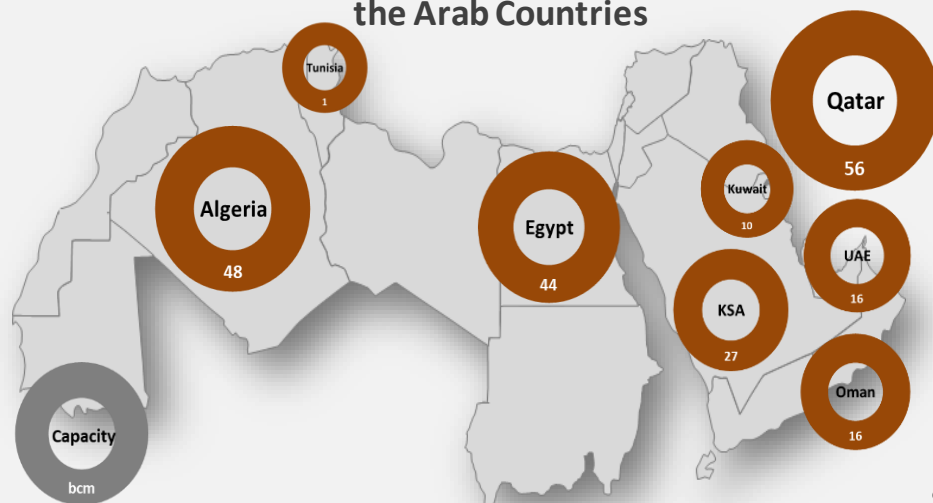
## 2 17 GW

-Renewable energy projects under construction/planned.

## 130 GW

-Total installed capacity of renewable energy sources according to announced targets

## Planned/ongoing Gas Development Projects in the Arab Countries



GW

60

50

40

30

20

10

0

R.E Targets

under construction R.E projects

Source:  
RECREE





“Gas is and will continue to be a key component of the energy system in the Arab countries and a major contributor to attain SDGs (in particular SDG7 and SDG11). Its role is extended to be a key part, not only in the energy transition phase, but also in the sustainable energy future”.

“Although Renewable energy sources’ share is limited (in primary and final energy consumption), many Arab counties adopted ambitious targets to increase its share to reduce the great reliance placed on oil & gas and continue to be a major oil & gas supplier to the world”.





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